PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of	
John C. Harvey and James W. Cuddihy	Examiner: SAINT-SURIN, J.
Serial No. 08/488,438	Group Art Unit: 2742
Filed: June 7, 1995	Atty. Docket. 05634.0235
For: **SIGNAL PROCESSING APPARATUS AND METHODS**	

BOX: ISSUE FEE - AMENDMENT

Assistant Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

I. REQUEST TO CONSIDER AMENDMENT AFTER NOTICE OF ALLOWANCE AND AFTER PAYMENT OF ISSUE FEE UNDER 37 C.F.R. § 1.312(A)

This amendment after the notice of allowance and payment of the issue fee is submitted in response to the interviews on June 16th, July 1st and 15th, 1999 and per request of the Examiners of the PTO. Applicants respectfully request that the following amendment be considered into the above-captioned application and the claims be permitted to issue.

II. REMARKS

A. Response to Obvious-Type Double Patenting Allegation over Claims 9 & 12 of U.S. Pat. No. 5,109,414

1. PTO Assertions in the Interview of July 15th, 1999.

PTO generally asserts that claims 9 and 12 of U.S. Pat. No. 5,109,414 (hereafter, "the '414 patent") are patentably distinct from the invention defined by Applicants' independent claims, i.e., 3 & 4 under the judicially created doctrine of obvious-type double patenting.

Additionally, the Examiner of record stated that:

1. the use of the entire patent '414 disclosure is applicable to determine the scope of the patented claims applied to the instant application's claims;

2. a combination of the claims in the '414 patent may used as basis for a double patenting rejection of the claims in the instant; and

3. the "comprising" language in the instant application's claims renders the claims obvious in light of the patent '414 claims.

2. Standard of Review for Obvious-Type Double Patenting Rejection

Under the doctrine of double patenting, the PTO must determine whether the invention defined by the application claims would have been obvious over the subject matter defined by the claims of the '414 patent, in light of the prior art. *In re Longi*, 225 USPQ 645, 648 (Fed. Cir. 1985).

An obvious-type double patenting rejection is analogous to the nonobviousness requirement of 35 U.S.C. 103 except that the patent principally underlying the double patenting rejection is not considered prior art. *In re*

Braithwaite, 379 F.2d 594, 154 USPQ 29 (CCPA 1967). Therefore, any analysis employed in an obvious-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination. *In re Braat*, 937 F.2d 589, 19 USPQ2d 1289 (Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985). M.P.E.P. § 804 (II) B (1).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) that establish a background for determining obviousness under 35 U.S.C. 103 are employed when making an obvious-type double patenting analysis. These factual inquiries are summarized as follows:

(A) Determine the scope and content of the patent claim and the prior art relative to the claim in the application at issue;

(B) Determine the differences between the scope and content of the patent claim and the prior art as determined in (A) and the claim in the application at issue;

(C) Determine the level of ordinary skill in the pertinent art; and

(D) Evaluate any objective indicia of nonobviousness. *M.P.E.P. § 804 (II) B (1).*

Given these standards for determination, Applicants fail to understand why the Examiner concluded that the term "comprising" in the application claim language could be used as basis for an obvious-type double patenting rejection over the subject matter defined by claims of the '414 patent. This conclusion failed to take into account any of the above factual inquiries in determining obvious-type double patenting.

3. Scope of Availability of the Patent Specification in Determining Obvious-Type Double Patenting

When considering whether the invention defined in a claim of an application is an obvious variation of the invention defined in the claim of a patent, ***the disclosure of the patent may not be used as prior art.*** However, this does not mean that the Examiner is precluded from the use of the patent disclosure.

There are two specific instances in which the specification can be used to determine the scope of the claim. (1.) In determining the meaning of a word in a claim, the specification may be examined. However, the words in a claim are generally not limited in their meaning by what is shown in the disclosure. (2.) In such instances where the disclosure will serve as a dictionary for the terms appearing in the patent, the disclosure may be used in interpreting the scope of the claim. *In re Vogel*, 422 F.2d 438, 441-42, 164 USPQ 619, 622 (CCPA 1970).

The disclosure of the patent is only an aid in determining the scope of the claim. Proper examination in the instant application must first determine what portion of the '414 patent disclosure supports the invention of claims 9 & 12, since only these portions may be considered in interpreting the scope of the claim. Once the scope of the claim is determined, then one must ask whether the pending claim would have been an obvious variation over the patented claim in view of the prior art, not the patented claim in view of the patent specification.

Examiner's assertion that the *entire* patent disclosure is applicable to determine obviousness as applied to the instant application's claims is unfounded and unlawful. The use of broad assertions in the patent specification which do not support the patent claims at issue to determine obvious-type double patenting constitutes using the patent as prior art, which it is not. *In re Vogel, supra.*

Additionally, there is no legal authority to combine patented claims in a single application to determine obvious-type double patenting. As stated above, the specification may be used to solely determine the scope of the claims, not motivation for obvious-type double patenting rejections. Each of Applicants' patented claims represent single inventions supported by at least one embodiment in the specification of the patent. Applicants' own patented inventions cannot be used against him as prior art in determining obvious-type double patenting since the patent disclosure may not be used as prior art. *In re Boylan*, 55 CCPA 1041, 392 F.2d 1017, 157 USPQ 370 (1968), *supra; In re Aldrich*, 55 CCPA 1431, 398 F.2d 855, 158 USPQ 311 (1968).

4. Applicants' Analysis as to Why Obvious-Type Double Patenting Rejection is Not Proper in the Instant Case

a. Specification Support for Claims 9 & 12 of U.S. Pat. No. 5,109,414.

Since M.P.E.P. § 804 II (B) 1 states that one must first determine how much of the patent disclosure pertains to the invention claimed in the patent because only [t]his portion of the specification supports the patent claims and may be considered, Applicants provide specification support for claims 9 and 12 of the '414 patent below to offer support in determining an exemplary portion of the patent disclosure pertaining to the invention claimed in the patent.

Claim 9 of the '414 patent is generally directed to a multichannel television distribution system in which a receiver/distributor means receives television programming from a plurality of program sources and directs the programming to a matrix switch means and a control signal detector means. There is a matrix switch means for receiving the programming from the receiver/distribution means and for directing selected portions of the received

programming to a recording device operatively connected to a multichannel television distribution means. A control signal detector means detects control signals respecting the programming and transfers the control signals to a storage/transfer means. The control signal detector means is configured to detect the control signals in a predetermined frequency range or at predetermined locations within the programming. A storage/transfer means receives and stores the control signals and transfers at least a portion of the control signals for further processing. A processor means controls the directing functions of the matrix switch means and the transfer functions of the storage/transfer means in response to the control signals or on local command.

Claim 9 of U.S. Pat. No. 5,109,414	Specification Support
9. In a multichannel television distribution system,	Refer to Figs. 3A-C, as described from column 10 line 24 to column 12 line 67.
a receiver/distributor means for receiving television programmingfrom a plurality of program sources and directing said programming to	Distribution amplifiers 63-70.
a matrix switch means and	Matrix switch 75.
a control signal detector means,	Signal processor 71.
a matrix switch means for receiving said programming from said receiver/distribution means and for directing selected portions of said received programming to a recording device	*See* column 11 line 44 to column 12 line 12. Video recorder and players 76 & 78.
operatively connected to a multichannel television distribution means,	Cable field distribution system 93.
a control signal detector means for detecting	Signal processor 71.
control signals respecting said programming and transferring said control signals	Column 11 lines 3-11.
to a storage/transfer means,	Cable program and controller 73.
said control signal detector means being configured to detect said control signals in a predetermined frequency range or at predetermined locations within said	*See* column 11 lines 3-11.

programming,	
a **storage/transfer means** for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	Cable program and controller 73. *See* column 11 lines 3-11.
a **processor means** for controlling the directing functions of said matrix switch means and the transfer functions of said storage/transfer means in response to said control signals or on local command.	Cable program and controller 73. *See* column 11 line 44 to column 12 line 12.

Claim 12 of the '414 patent is generally directed to a multichannel television distribution system in which a receiver/distribution means receives television programming from a plurality of program sources and outputs the programming to a matrix switch means and a control signal detector and processor means. A matrix switch means receives the programming from the plurality of receiver/distribution means and outputs selected portions of the received programming to a multichannel television distribution means. A control signal detector and processor means detects the control signal respecting the programming and transfers the control signals to a storage/transfer means. The control signal detector and processor means is configured to detect the control signals in specified frequency ranges or at specified locations within the programming. The control signal detector and processor means controls the particular ranges and locations wherein the control signals are directed. A storage/transfer means receives and stores the control signals and transfers at least a portion of the control signals for further processing. A processor means controls the output functions of the matrix switch means and the transfer functions of the storage/transfer means in response to the control signals or on local command.

Claim 12 of U.S. Pat. No. 5,109,414	Specification Support
12. In a multichannel television distribution system,	Refer to Figs. 3A-C, as described from column 10 line 24 to column 12 line 67.

a plurality of receiver/distribution means for receiving television programming from a plurality of program sources and outputting said programming to a matrix switch means and a control signal detector and processor means,	Distribution amplifiers 63-70. Matrix switch 75. Signal processor 71.
a matrix switch means for receiving said programming from said plurality of receiver/distribution means and for outputting selected portions of said received programming to a multichannel television distribution means,	Matrix switch 75. Distribution amplifiers 63-70. Cable field distribution system 93.
a control signal detector and processor means for detecting control signal respecting said programming and transferring said control signals to a storage/transfer means, said control signal detector and processor means being configured to detect said control signals in specified frequency ranges or at specified locations within said programming, said control signal detector and processor means controlling the particular ranges and locations wherein said control signals are detected,	Signal processor 71. *See* column 11 lines 3-11.
a storage/transfer means for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	Cable program and controller 73. *See* column 11 lines 3-11.
a processor means for controlling the output functions of said matrix switch means and the transfer functions of said storage/transfer means in response to said control signals or local command.	Cable program and controller 73. *See* column 11 line 44 to column 12 line 12.

b. Analysis of Claim 3 with Claim 9 of U.S. Pat. No. 5,109,414.

(1) Claim Comparison Chart

Claim 9 of U.S. Pat. No. 5,109,414	Claim 3
9. In a multichannel television distribution system,	A method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of

	intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:
a receiver/distributor means for receiving television programmingfrom a plurality of program sources and directing said programming to a matrix switch means and a control signal detector means, a matrix switch means for receiving said programming from said receiver/distribution means and for directing selected portions of said received programming to a recording device operatively connected to a multichannel television distribution means,	transmitting from said at least one origination station said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;
a control signal detector means for detecting control signals respecting said programming and transferring said control signals to a storage/transfer means, said control signal detector means being configured to detect said control signals in a predetermined frequency range or at predetermined locations within said programming,	transmitting said at least one signal for comparison from said at least one origination station;
a storage/transfer means for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	said plurality of intermediate transmission stations receiving said at least one unit of programming, detecting said plurality of retransmission control signals and receiving said at least one signal for comparison, each said plurality of intermediate transmission stations passing said retransmission control signals and said at least one signal for comparison to said automatic control unit, each said plurality of intermediate transmission stations storing said at least one unit of programming based on comparisons performed by said automatic control unit in accordance with said plurality of retransmission control signals and retransmitting said at least one unit of programming in accordance with said plurality of retransmission control signals; and
a processor means for controlling the directing functions of said matrix switch means and the transfer functions of said storage/transfer	said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different

means in response to said control signals or on local command.	times in accordance with said programmed automatic control unit.

(2) Patentable Distinctions of Claim 3 over Claim 9 of U.S. Pat. No. 5,109,414.

Claim 3 of the present application has as patentable distinctions over the disclosure of claim 9 of the '414 patent:

a method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:

transmitting from said at least one origination station said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;

transmitting said at least one signal for comparison from said at least one origination station;

said plurality of intermediate transmission stations receiving said at least one unit of programming, detecting said plurality of retransmission control signals and receiving said at least one signal for comparison, each said plurality of intermediate transmission stations passing said retransmission control signals and said at least one signal for comparison to said automatic control unit, each

said plurality of intermediate transmission stations storing said at least one unit of programming based on comparisons performed by said automatic control unit in accordance with said plurality of retransmission control signals and retransmitting said at least one unit of programming in accordance with said plurality of retransmission control signals; and

said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.

(3) Reasons Patentable Distinctions would not be Obvious to One Having Ordinary Skill in the Art at the Time of the Invention.

Claim 3 of the present application claims a method of communicating at least one unit of programming in a communications network. There is no teaching in the prior art nor any knowledge one of ordinary skill in the art at the time of the invention would have possessed that would render claim 3 an obvious variation over the invention defined by claim 9 of the '414 patent. There is simply no suggestion that the multichannel television distribution system as disclosed in claim 9/12 performs, *inter alia*, transmitting from said at least one origination station said at least one unit of programming....; said plurality of intermediate transmission stations receiving said at least one unit of programming....; and said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit, as the instant claim specifies. For this reason, *inter alia*, given the patentable distinctions as outlined above, claim 3 of the present application is not obvious over the invention defined by claim 9 of the '414 patent in light of the prior art.

c. Analysis of Claim 4 with Claim 9 of U.S. Pat. No. 5,109,414.

(1) Claim Comparison Chart

Claim 9 of U.S. Pat. No. 5,109,414	Claim 4
9. In a multichannel television distribution system,	A method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said at least one selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, comprising the steps of:
a receiver/distributor means for receiving television programmingfrom a plurality of program sources and directing said programming to a matrix switch means and a control signal detector means, a matrix switch means for receiving said programming from said receiver/distribution means and for directing selected portions of said received programming to a recording device operatively connected to a multichannel television distribution means,	(1) receiving said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;
a control signal detector means for detecting control signals respecting said programming and transferring said control signals to a storage/transfer means, said control signal detector means being configured to detect said control signals in a predetermined frequency range or at predetermined locations within said programming,	(2) receiving a control signal which operates at said plurality of intermediate transmitter stations to communicate said at least one unit of programming to said transmitter; and
a storage/transfer means for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	(3) transmitting said at least one unit of programming, wherein said at least one unit of programming is effective to cause said plurality of intermediate transmission stations to retransmit said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.
a processor means for controlling the directing	

functions of said matrix switch means and the transfer functions of said storage/transfer means in response to said control signals or on local command.	

(2) Patentable Distinctions of Claim 4 over Claim 9 of U.S. Pat. No. 5,109,414.

Claim 4 of the present application has as patentable distinctions over the disclosure of claim 9 of the '414 patent:

a method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said at least one selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, comprising the steps of:

receiving said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;

receiving a control signal which operates at said plurality of intermediate transmitter stations to communicate said at least one unit of programming to said transmitter; and

transmitting said at least one unit of programming, wherein said at least one unit of programming is effective to cause said plurality of intermediate transmission stations to retransmit said at least one unit of programming

independently and at different times in accordance with said programmed automatic control unit.

(3) Reasons Patentable Distinctions would not be Obvious to One Having Ordinary Skill in the Art at the Time of the Invention.

Claim 4 of the present application claims a method of communicating at least one unit of programming in a communications network. There is no teaching in the prior art nor any knowledge one of ordinary skill in the art at the time of the invention would have possessed that would render claim 4 an obvious variation over the invention defined by claim 9 of the '414 patent. There is simply no suggestion that the multichannel television distribution system as disclosed in claim 9 performs, *inter alia*, receiving said at least one unit of programming.... including a plurality of retransmission control signals; receiving a control signal ...to communicate said at least one unit of programming ...; and transmitting said at least one unit of programming...as the instant claim specifies. For this reason, *inter alia*, given the patentable distinctions as outlined above, claim 4 of the present application is not obvious over the invention defined by claim 9 of the '414 patent in light of the prior art.

d. Analysis of Claim 3 with Claim 12 of U.S. Pat. No. 5,109,414.

(1) Claim Comparison Chart

Claim 12 of U.S. Pat. No. 5,109,414	Claim 3
12. In a multichannel television distribution system,	A method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective

	transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:
a plurality of receiver/distribution means for receiving television programming from a plurality of program sources and outputting said programming to a matrix switch means and a control signal detector and processor means,	transmitting from said at least one origination station said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;
a matrix switch means for receiving said programming from said plurality of receiver/distribution means and for outputting selected portions of said received programming to a multichannel television distribution means,	transmitting said at least one signal for comparison from said at least one origination station;
a control signal detector and processor means for detecting control signal respecting said programming and transferring said control signals to a storage/transfer means, said control signal detector and processor means being configured to detect said control signals in specified frequency ranges or at specified locations within said programming, said control signal detector and processor means controlling the particular ranges and locations wherein said control signals are detected,	said plurality of intermediate transmission stations receiving said at least one unit of programming, detecting said plurality of retransmission control signals and receiving said at least one signal for comparison, each said plurality of intermediate transmission stations passing said retransmission control signals and said at least one signal for comparison to said automatic control unit, each said plurality of intermediate transmission stations storing said at least one unit of programming based on comparisons performed by said automatic control unit in accordance with said plurality of retransmission control signals and retransmitting said at least one unit of programming in accordance with said plurality of retransmission control signals; and
a storage/transfer means for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.
a processor means for controlling the output functions of said matrix switch means and the transfer functions of said storage/transfer	

means in response to said control signals or local command.	

(2) Patentable Distinctions of Claim 3 over Claim 12 of U.S. Pat. No. 5,109,414.

Claim 3 of the present application has as patentable distinctions over the disclosure of claim 12 of the '414 patent:

a method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:

transmitting from said at least one origination station said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;

transmitting said at least one signal for comparison from said at least one origination station;

said plurality of intermediate transmission stations receiving said at least one unit of programming, detecting said plurality of retransmission control signals and receiving said at least one signal for comparison, each said plurality of intermediate transmission stations passing said retransmission control signals and said at least one signal for comparison to said automatic control unit, each

said plurality of intermediate transmission stations storing said at least one unit of programming based on comparisons performed by said automatic control unit in accordance with said plurality of retransmission control signals and retransmitting said at least one unit of programming in accordance with said plurality of retransmission control signals; and

said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.

(3) Reasons Patentable Distinctions would not be Obvious to One Having Ordinary Skill in the Art at the Time of the Invention.

Claim 3 of the present application claims a method of communicating at least one unit of programming in a communications network. There is no teaching in the prior art nor any knowledge one of ordinary skill in the art at the time of the invention would have possessed that would render claim 3 an obvious variation over the invention defined by claim 12 of the '414 patent. There is simply no suggestion that the multichannel television distribution system as disclosed in claim 12 performs, *inter alia*, transmitting from said at least one origination station said at least one unit of programming....; said plurality of intermediate transmission stations receiving said at least one unit of programming....; and said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit, as the instant claim specifies. For this reason, *inter alia*, given the patentable distinctions as outlined above, claim 3 of the present application is not obvious over the invention defined by claim 12 of the '414 patent in light of the prior art.

e. Analysis of Claim 4 with Claim 12 of U.S. Pat. No. 5,109,414.

(1) Claim Comparison Chart

Claim 12 of U.S. Pat. No. 5,109,414	Claim 4
12. In a multichannel television distribution system,	A method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said at least one selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, comprising the steps of:
a plurality of receiver/distribution means for receiving television programming from a plurality of program sources and outputting said programming to a matrix switch means and a control signal detector and processor means,	(1) receiving said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;
a matrix switch means for receiving said programming from said plurality of receiver/distribution means and for outputting selected portions of said received programming to a multichannel television distribution means,	(2) receiving a control signal which operates at said plurality of intermediate transmitter stations to communicate said at least one unit of programming to said transmitter; and
a control signal detector and processor means for detecting control signal respecting said programming and transferring said control signals to a storage/transfer means, said control signal detector and processor means being configured to detect said control signals in specified frequency ranges or at specified locations within said programming, said control signal detector and processor means controlling the particular ranges and locations wherein said control signals are detected,	(3) transmitting said at least one unit of programming, wherein said at least one unit of programming is effective to cause said plurality of intermediate transmission stations to retransmit said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.

a storage/transfer means for receiving and storing said control signals and for transferring at least a portion of said control signals for further processing, and	
a processor means for controlling the output functions of said matrix switch means and the transfer functions of said storage/transfer means in response to said control signals or local command.	

(2) Patentable Distinctions of Claim 4 over Claim 12 of U.S. Pat. No. 5,109,414.

Claim 4 of the present application has as patentable distinctions over the disclosure of claim 12 of the '414 patent:

a method of communicating at least one unit of programming in a communications network, said communications network including at least one origination station and a plurality of intermediate transmission stations, each said plurality of intermediate transmission stations having a receiver, at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter, an automatic control unit operatively connected to said at least one selective transmission device, a detector operatively connected to said automatic control unit for detecting at least one signal, and said automatic control unit being programmed to perform in a station specific fashion, comprising the steps of:

receiving said at least one unit of programming, said at least one unit of programming including a plurality of retransmission control signals;

receiving a control signal which operates at said plurality of intermediate transmitter stations to communicate said at least one unit of programming to said transmitter; and

transmitting said at least one unit of programming, wherein said at least one unit of programming is effective to cause said plurality of intermediate transmission stations to retransmit said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.

(3) Reasons Patentable Distinctions would not be Obvious to One Having Ordinary Skill in the Art at the Time of the Invention.

Claim 4 of the present application claims a method of communicating at least one unit of programming in a communications network. There is no teaching in the prior art nor any knowledge one of ordinary skill in the art at the time of the invention would have possessed that would render claim 4 an obvious variation over the invention defined by claim 12 of the '414 patent. There is simply no suggestion that the multichannel television distribution system as disclosed in claim 12 performs, *inter alia*, receiving said at least one unit of programming.... including a plurality of retransmission control signals; receiving a control signal ...to communicate said at least one unit of programming ...; and transmitting said at least one unit of programming,...as the instant claim specifies. For this reason, *inter alia*, given the patentable distinctions as outlined above, claim 4 of the present application is not obvious over the invention defined by claim 12 of the '414 patent in light of the prior art.

B. General Overview and Summary of Applicants' 1987 Disclosure

While the Examiners suggest that Applicants' 1987 disclosure may appear to contain a series of isolated examples, Applicants maintain that their examples are carefully tied together. An essential feature of Applicants' disclosure in the

specification is that they explain their invention and the various embodiments thereof and their interrelationship. The following description provides the complete context of the disclosure, illuminating important timing and error correction considerations and explaining the interrelationship of Applicants' full system.

One clear series of teachings is focused around the "Wall Street Week" combined image of Fig. 1C. A first part of this image is received in a television signal. Fig. 1B shows this first part. A second part, Fig. 1A, is generated at the viewer station by processing data, which exists at the viewer station, in response to control instructions which are detected in the television signal. In a section entitled "One Combined Medium" (pages 19-28) at the beginning of the Description of the Preferred Embodiments, a sequence of events associated with the display of Fig. 1C is disclosed. A first series of instructions invoke broadcast control (defined at page 23 lines 24-26), which includes clearing video RAM. A second series of instructions construct the Fig. 1A image at video RAM. The Fig. 1B image is received in the "Wall Street Week" program, and is explained by the program host as showing the performance of the Dow Industrials. When the host says, "And here is what your portfolio did," an instruction in the television signal executes "GRAPHICS ON" which combines the Figs. 1A and 1B images and displays Fig. 1C. After an interval of time during which corresponding personalized programming is displayed simultaneously to every properly equipped member of the "Wall Street Week" audience, an instruction executes "GRAPHICS OFF" and causes Fig. 1A no longer to be displayed. The disclosure defines "combining synch command" at page 26 lines 20-24, and explains that instructions that construct the Fig. 1A, execute "GRAPHICS ON", and execute "GRAPHICS OFF" each comprise a combining synch command. Subsequently,

these are referred to throughout the disclosure as the **"first", "second", and "third combining synch commands of the 'Wall Street Week' example".**

After providing a detailed disclosure of apparatus of the invention (called "SPAM" apparatus) and of the composition of messages and message streams, four examples, between pages 108 and 248, disclose alternate ways of processing the first, second, and third combining synch commands of the 'Wall Street Week' example. These examples reference Fig. 3. Example #1 describes transferring the messages to an addressed controller and causing the controller to respond. Examples #2 and #4 disclose alternate decryption techniques whereby portions of the message stream containing the three combining synch commands are selectively decrypted. Examples #3 and #4, which reference Fig. 3A as the controller of decoders 203 and 205C, disclose the collection of metering data (e.g., for billing purposes) and monitoring data (e.g., for TV viewership ratings) based on content of the first two combining synch commands. Each example discloses control of a sequence of events, and describes carefully how its sequence occurs within the broader context of "One Combined Medium" at pages 19-28. Specifically each of examples #1, #2, #3, and #4 elaborates on the portion of "One Combined Medium" from page 24 line 1 to page 27 line 7. In these four examples, each later example builds upon concepts disclosed and definitions provided in the earlier examples.

Example #5 (pages 248-271) focuses on functions performed by Signal Processor 200 in Fig. 3 *concurrently with* the sequence of events described in "One Combined Medium" *and at apparatus which perform* the metering and monitoring of examples #3 and #4. The first combining synch command of the "Wall Street Week" example is also processed in example #5. Example #5 introduces concepts that are subsequently used (e.g., in example #7) to teach automatic selection of programming, including the "Wall Street Week" program itself. At pages 271-

278, the disclosure explains how the metering and monitoring, in particular of the first combining synch command of the "Wall Street Week" example, causes the content of recorder 16 to exceed a predetermined level which causes the Signal Processor to telephone a remote data collection station and dump the content of recorder 16 to the remote station.

Example #7, which occurs at pages 288-312 and 427-447 and incorporates concepts of example #6, teaches selection of the "Wall Street Week" program itself, interconnection of subscriber station apparatus to provide station specific processing *alternatives* based on pre-stored instructions, and decryption of the "Wall Street Week" program transmission. The disclosure teaches (e.g., page 311 lines 10-16) how this causes the station (now of Fig. 4 or Fig. 7 which are subscriber stations of the intermediate transmission station of Fig. 6) to perform the functions "One Combined Medium" and examples #1-#4.

The disclosure also cites (pages 322-333) and sites the "Wall Street Week" monitoring and metering functions within the extended Fig. 5 monitoring disclosed at pages 312-314.

In "Controlling Computer-Based Combined Media Operations" (pages 447-457), the disclosure teaches how the "Wall Street Week" subscriber portfolio contents and stock price data come to be up-to-date when the program begins, teaches that the Fig. 1C combining is the first of a series of overlays, teaches error detection techniques to prevent the display of incorrect or incomplete overlays, and teaches error correction techniques to enable slow viewer station computers that fall behind to catch up.

A second clear series of teachings is focused around a television spot commercial called <u>program unit Q.</u>

Within the disclosure of automated intermediate transmission station functionality that begins at page 324, program unit Q is introduced at page 331

lines 21-22 in a passage that teaches organizing units of prerecorded programming to play according to schedule.

Example #8 (pages 340-354) discloses that program unit Q is a television spot commercial and teaches how it is transmitted with other spot commercials from a satellite up-link to automated cable TV head-ends which are caused automatically to select, store, and retransmit the spot commercials at different times and on different channels.

Example #9 (pages 354-374) discloses that program unit Q is a combined medium television spot commercial and teaches how one of the automated head-ends of example #8 creates and transmits according to a schedule a time specific and transmitter specific control signal with data that applies to specials and discounts in a local supermarket at the scheduled time of transmission. The relationship of examples #8 and #9 is discussed at page 355 lines 15-32.

Example #10 (pages 374-390) teaches how the automated head-end (as one of a plurality of such head-ends each) creates the time specific and transmitter specific control signal with data and inserts the control signal into a network broadcast of combined medium program unit Q.

The subscriber station functionalities associated with both examples #9 and #10 (see page 469 line 1) are taught at pages 469-516. Each of a plurality of viewer stations creates receiver specific output in response to the control signal(s) as well as selecting viewer specific output from among the transmitted transmitter specific data. Each outputs its output in a series of time intervals of specific relevance. The relationship of pages 469-514 to pages 324-390 is explicit and unmistakable in that every disclosure (e.g., 354-374, 374-390, and 469-516) teaches a sequence of more than thirteen messages with matching names. These include, for example, the "transmit-and-execute-program-instruction-set message" (page 371 lines 9-10, page 385 lines 7-8, and page 484 lines 1-2) and

"program-instruction-set message" (page 371 lines 17-19, page 385 lines 14-16, and 484 line 5). Furthermore, corresponding named ones of these messages are disclosed in each respective passage (e.g., 354-374, 374-390, and 469-516) to have functionally identical content and to cause identical functioning at the subscriber stations. The passage at page 514 lines 8-30 states this.

Having disclosed all the individual elements and procedures of their system, Applicants finish their disclosure by describing a cycle in "Summary Example #11". The cycle involves controlling the disclosed system on a large scale to interconnect and distribute information to users, create control signals, create output in response to the control signals, display and explain the information and output, and receive and process feedback in order to repeat the cycle. Important disclosed functions such as preprogramming operating system instructions (page 537), creation of control signals (pages 541-547), creation of output for display (e.g., pages 548-551), display of the output (e.g., middle of page 552 to top of page 554), reception of feedback (pages 555-556), and distribution of new information based on the feedback (page 556) are cited in specific sequence and make clear reference to the pertinent portions of the specification that disclose these important functions.

C. Specification Support of the Claims

1. Claim 3

In example #8 of the 1987 patent specification, satellite uplink transmits a series of 26 television spot commercials via satellite to several cable system head ends. Each spot commercial is transmitted with embedded signals (e.g., identifiers) which enable each cable head end to retransmit its own scheduled commercials. The uplink transmits a schedule to each head end that contains at least one comparison signal (e.g., an identifier) that identifies at least one spot commercial

scheduled to be retransmitted. Each cable head end contains a selective transmission device (e.g., a tunable receiver or storage device) that is controlled by a computer. Each cable head end receives and inputs to its computer the retransmission control signals and its schedule. By comparing the retransmission control signals to its schedule, each cable head end selects and retransmits its own scheduled spot commercials, with the cable head ends operating independently and retransmitting at least one commercial at different times.

Claim 3 finds support in the specification at pages 324-354 and especially at pages 340-354.

Claim Language	Spec. Reference	Specification Language
A method of communicating at least one unit of programming	Page 340 lines 12-23 and	AUTOMATING INTERMEDIATE TRANSMISSION STATIONS ... EXAMPLE #8 Using the capacity described above for identifying, selecting, and recording received programming; for organizing recorded programming to play according to schedule; for playing selected organized programming on schedule; ... a remote distribution station can transmit to a plurality of intermediate transmission stations programming that is scheduled for delayed transmission, cause each station of said plurality automatically to select and retransmit programming according to its own specific schedule, ...
	page 340 line 33 through page 341 lines 4;	Said programming might be, for example, so-called "television spot commercials." Providing means where by one station can transmit programming to a plurality of intermediate transmission stations and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule
	page 344 lines 23-30;	At 4 A.M. eastern standard time, on January 28, 1988 said remote distribution station commences transmitting programming by satellite up-link means, well known in the art. Said programming consists of a sequence of the program units of 26 spot

		commercials, each of thirty seconds duration. In succession, said station transmits units A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.
in a communications network,	for example, page 342 line 26 through page 343 line 4;	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network.
said communications network including at least one origination station and	page 340 lines 28-34;	One such remote distribution station might be, for example, a so-called "satellite uplink" that transmits programming, in a fashion well known in the art, to a plurality of receiver stations via a satellite transponder (said intermediate transmission stations being among said receiver stations). Said programming might be, for example, so-called "television spot commercials."
a plurality of intermediate transmission stations,	page 340 lines 18-20 and	a remote distribution station can transmit to a plurality of intermediate transmission stations
each said plurality of intermediate transmission stations	Page 341 lines 11-18.	...and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule....
	page 341 lines 26-29,	Among said intermediate stations are cable system head ends located in California and Florida, broadcast stations located in Texas and Washington, D.C., and the station of Fig. 6 which is, for example, in Vermont.
having a receiver,	for example, TV receiver 53 in figure	

	6A, and,page 343 lines 21-32;	...instructions at each computer, 73, cause the computers, 73, at said intermediate transmission stations each, in a predetermined fashion, to commence preparing its particular station to receive and record information of the transmission of transponder 23 of the Galaxy 1 satellite. Automatically, at the station of Fig. 6, the computer, 73, instructs a selected earth station, 50, to move its antenna so as to receive transmissions from a satellite at the celestial coordinates of the Galaxy 1 satellite and instructs amplifier, 51, and receiver, 53, to amplify and tune as required to receive the transmission of the frequency of the transponder 23 of said satellite.
at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter,	for example, video recorder and player 76 in figure 6A, page 347 lines 14-30,	Each computer, 73, of said intermediate stations is preprogrammed to account for and keep track of the quantity of time available for additional recording on the individual tapes loaded on the recorders (eg., 76 and 78) of its station, ...
an automatic control unit operatively connected to said selective transmission device,	for example, cable program controller and computer 73 in figure 6A, page 326 lines 19-20, page 341 lines 30-34;	Cable program controller and computer, 73, is the central automatic control unit for the transmission station. At each intermediate transmission station is a computer, 73, that is preprogrammed to receive, process, and record, in a predetermined fashion, program schedule information that is transmitted from said remote distribution station.
a detector operatively connected to said automatic control unit for detecting at least one signal,	for example, in signal processor 71 in figure 6A, page 341 line 34 through page 342 line 2 with	And the signal processor system, 71, and the computer, 73, of each station are preprogrammed to process particular SPAM

		message instructions are transmitted from said remote distribution station.
	page 39 lines 1-11;	Fig. 2D shows one embodiment of a signal processing system. Said system contains signal processor, 26, and external decoders, 27, 28, and 29. Each said external decoder may be a TV signal decoder (Fig. 2A) or a radio signal decoder (Fig. 2B) or an other signal decoder (Fig. 2C) depending on the nature of the selected frequency inputted. As Fig. 2D shows, each decoder, 27, 28, and 29, receives one selected frequency and has capacity for transferring detected, corrected, converted, and possibly modified signals to signal processor, 26, at buffer/comparator, 8, and also to other station apparatus.
and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:	Page 341 lines 30-34,	At each intermediate transmission station is a computer, 73, that is preprogrammed to receive, process, and record, in a predetermined fashion, program schedule information that is transmitted from said remote distribution station.
	and page 343 lines 5-7.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently.
transmitting from said at least one origination station said at least one unit of programming,	Page 340 line 33 through page 341 line 4,	Said programming might be, for example, so-called "television spot commercials." Providing means where by one station can transmit programming to a plurality of intermediate transmission stations and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule ...
	page 344 lines 23-30;	At 4 A.M. eastern standard time, on January 28, 1988 said remote distribution station commences transmitting programming by satellite up-link means, well known in the art. Said programming consists of a sequence of the program units of 26 spot commercials, each of thirty seconds duration. In succession, said station transmits units A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.
said at least one unit of programming including a plurality of retransmission control signals;	page 344 lines 30-32 and,	Embedded in each of said program units are SPAM messages containing appropriate "program unit identification code" information and distance information.

	for example, page 330 line 5 through page 331 line 16.	Computer, 73, has capacity for determining what programming is prerecorded on the magnetic tapes (or other recording media) loaded on the recorders, 76 and 78, and capacity for positioning the start points (or other selected points) of program units at the play heads of said recorders. Whenever programming is played on recorder, 76 or 78, decoder, 77 or 79 respectively, detects SPAM information embedded in the prerecorded programming played at the play heads of recorder, 76 or 78, and transmits said SPAM information to computer, 73. Said SPAM information can include not only "program unit identification code" information but also information regarding of the distance from the point on the tape at which a given SPAM message is embedded to the point on the tape where the program unit begins and ends (or to any other selected point). To position the start point (or another selected point) of a given program unit at the play heads of a given recorder, 76, computer, 73, instructs switch, 75, to configure its switches so as to transfer the transmission input from said recorder, 76, to no output. Then by instructing recorder, 76, to play and decoder, 77, to detect SPAM information in a particular location or locations, computer, 73, causes decoder, 77, to detect and transfer to computer, 73, said program unit and distance information. Receiving said information causes computer, 73, to cause recorder, 76, to stop playing; to analyze said distance information in a predetermined fashion; and to compute the precise time required to rewind to reach the start of the program unit or to move fast forward to reach the end. Then automatically, computer, 73, causes said recorder, 76, first, to start rewinding or moving fast forward then to stop after the precise time elapses. (Such distance information can be embedded as SPAM message information segment information anywhere in the programming that SPAM information can be embedded and need not repeat continuously–one embedded signal word is sufficient for this method to work. But a method wherein only one instance of distance information is embedded in any given program unit of programming has the disadvantage of causing too much apparatus at too many stations to spend too much time searching for said instance. In the preferred embodiment,

		distance information is embedded in the relevant normal transmission location of its programming and occurs periodically throughout a program unit with increasing frequency as the closeness of the start or end of the programming approaches and with one instance, in television programming, occurring on the first and fourth frames and the last two frames of the programming.)
transmitting said at least one signal for comparison from said at least one origination station;	Page 342 lines 10-11 with page 328 lines 8-13.	Said remote station inputs schedule information to each computer, 73. By comparing selected ... with information of the programming schedule received earlier from input, 74, and/or network, 98, computer, 73, can determine, in a predetermined fashion, when and on what channel or channels the station of Fig. 6 should transmit the programming ....
said plurality of intermediate transmission stations receiving said at least one unit of programming,	Page 346 line 34 through page 347 line 5 and page 349 line 35 through page 350 line 7;	Subsequently, receiving the select-Q-message (#8) causes said computer, 73, to determine that the "program unit identification code" information of unit Q matches preprogrammed schedule information which causes said computer, 73, to cause recorder, 76, to commence recording, thereby causing said recorder, 76, to record the programming of program unit Q which follows said select-Q-message (#8). Receiving said select-J-message (#8), the select-L-message (#8), and the select-Q-message (#8) cause said Florida computer, 73, to determine that "program unit identification code" information matches preprogrammed schedule information which causes said Florida computer, 73, to cause a selected recorder of said station to commence recording, thereby causing said recorder to record the programming of program units J, L, and Q.
detecting said plurality of retransmission control signals and	page 345 lines 29-33 (Here each station would also detect the embedded identification codes and distance information a first time.) and page 348 line 30 through page 349 line	Transmitting said programming and said cue-to-select messages (#8) causes signal processing system apparatus at each of said stations to detect said cue-to-select messages (#8) and input said messages to the computers, 73, of said intermediate stations. Whenever any given computer, 73, of said stations determines that no further units will

	22 with (Here each station would also detect the embedded identification codes and distance information at least a second time, see citation of page 330, lines 10-19 below.) (See also page 331, line 17 *et seq.*)	be received, said computer, 73, causes apparatus of its station to cease receiving the transmission of said remote distribution station, alters its operating records to show that the receiver apparatus receiving said transmission is available for other use; and commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule. At the station of Fig. 6, receiving said select-Z- message (#8) causes computer, 73, to determine that program units Q, Y, W, and D have been received and that no further units will be received. Determining that no further units will be received causes computer, 73, to cause matrix switch, 75, to configure its switches so as to transfer transmissions inputted from receiver, 53, to no output; to alter its operating records to show that the receiver apparatus receiving the transmission of said remote distribution station is no longer in use and is available; and to organize the locations of the recorded program units, D, Q, W, and Y, to play according to the schedule inputted by said distribution station in the fashion described above (in the paragraph of the section, "AUTOMATING INTERMEDIATE TRANSMISSION STATIONS," that begins, "Computer, 73, has capacity for automatically organizing the locations of units of prerecorded programming ... to play according to a given schedule").
	page 330 lines 10-19;	Whenever programming is played on recorder, 76 or 78, decoder, 77 or 79 respectively, detects SPAM information embedded in the prerecorded programming played at the play heads of recorder, 76 or 78, and transmits said SPAM information to computer, 73. Said SPAM information can include not only "program unit identification code" information but also information regarding of the distance from the point on the tape at which a given SPAM message is embedded to the point on the tape where the program unit begins and ends (or to any other selected point).
receiving said at least one signal for	Page 342 lines 28-30 and	...informs said computer, 73, to select and record program units Q, D, Y, and W; to

comparison,		transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988
	page 343 line 5-11;	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L
each said plurality of intermediate transmission stations passing said retransmission control signals	Page 345 lines 30-33. (The embedded signals would be passed a first time.)	Transmitting said programming and said cue-to-select messages (#8) causes signal processing system apparatus at each of said stations to detect said cue-to-select messages (#8) and input said messages to the computers, 73, of said intermediate stations.
	Page 344 lines 30-31.	Embedded in each of said program units are SPAM messages containing appropriate "program unit identification code" information and distance information.
	Page 348 line 30 through page 349 line 22, and (The embedded signals would be passed at least a second time.)	Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, ... commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule.
	page 330 line 10-14;	Whenever programming is played on recorder, 76 or 78, decoder, 77 or 79 respectively, detects SPAM information embedded in the prerecorded programming played at the play heads of recorder, 76 or 78, and transmits said SPAM information to computer, 73.
and said at least one signal for comparison to said automatic control unit,	page 342 lines 10-11;	Said remote station inputs schedule information to each computer, 73.
each said plurality of intermediate transmission stations storing said at least one unit of programming based	Page 326 lines 27-33.	Computer, 73, has means for receiving input information from local input, 74, and from remote stations via telephone or other data transfer network, 98. Such input information can include the complete programming schedule of the station of Fig. 6, with each

on comparisons performed by said automatic control unit in accordance with said plurality of retransmission control signals and		discrete unit of programming identified by its own "program unit identification code" information.
	page 345 lines 3-18;	Each message contains the same execution segment information that is addressed to ITS computers, 73, and instructs each computer, 73, to identify the information in the meter-monitor segment of said message, to compare said "code" information to the preprogrammed schedule information of said computer, 73, and if a match results, to select and record the programming of the program unit that follows said message, or if no match results, to not select and not record said programming. Each message contains meter-monitor "program unit identification code" information of the program unit that immediately follows.
	page 346 lines 3-15;	The computers, 73, of said intermediate stations are preprogrammed to process the information of said cue-to- select messages (#8), and receiving any given one of said messages causes each computer, 73, of one of said intermediate transmission stations to determine whether the "program unit identification code" information of said one matches schedule information previously inputted to said computer, 73, by said distribution station. Determining a match causes said computer, 73, to cause apparatus of its station to record the programming of the program unit transmitted immediately after said one. Not determining a match causes said computer, 73, to cause apparatus of its station not to record said program unit.
	page 346 line 34 through page 347 line 5,	Subsequently, receiving the select-Q-message (#8) causes said computer, 73, to determine that the "program unit identification code" information of unit Q matches preprogrammed schedule information which causes said computer, 73, to cause recorder, 76, to commence recording, thereby causing said recorder, 76, to record the programming of program unit Q which follows said select-Q-message (#8).
	page 349 lines 27-34, and	For example, transmitting the select-J-message (#8), the select-K-message (#8) the select-L-message (#8), the select-M-message

		(#8), the select-Q-message (#8), and the select-R-message (#8) causes signal processing apparatus at the aforementioned cable system head end station in Florida to input the aforementioned Florida computer, 73, that said distribution has instructed to select, record, and play program units Q, J, and L according to schedule
	page 348 line 30 through page 349 line 22 with (see also page 331, line 17 *et seq.*)	Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, causes apparatus of its station to cease receiving the transmission of said remote distribution station, alters its operating records to show that the receiver apparatus receiving said transmission is available for other use; and commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule.
retransmitting said at least one unit of programming in accordance with said plurality of retransmission control signals; and	page 351 lines 31-32, page 353 lines 11-23, Page 330 lines 5-35.	...to commence transmitting the locally originated transmission of unit Q. (At the station of said Florida computer, 73, receiving said first-network-cue-to-transmit-network message (#8) causes said Florida computer, 73, to cause the apparatus of said station to cease transmitting the locally originated transmission of unit J; to recommence transmitting said Cable News Network transmission; and to prepare to play the locally originated transmission of unit Q or unit L.) Subsequently, other SPAM cueing messages cause the computer, 73, of the station of Fig. 6; said Florida computer, 73; and the computers, 73, of others of said intermediate transmission stations to locate, position to play, and transmit automatically other local origination program units. Computer, 73, has capacity for determining what programming is prerecorded on the magnetic tapes (or other recording media) loaded on the recorders, 76 and 78, and capacity for positioning the start points (or other selected points) of program units at the play heads of said recorders. Whenever programming is played on recorder, 76 or 78, decoder, 77 or 79 respectively, detects SPAM

		information embedded in the prerecorded programming played at the play heads of recorder, 76 or 78, and transmits said SPAM information to computer, 73. Said SPAM information can include not only "program unit identification code" information but also information regarding of the distance from the point on the tape at which a given SPAM message is embedded to the point on the tape where the program unit begins and ends (or to any other selected point). To position the start point (or another selected point) of a given program unit at the play heads of a given recorder, 76, computer, 73, instructs switch, 75, to configure its switches so as to transfer the transmission input from said recorder, 76, to no output. Then by instructing recorder, 76, to play and decoder, 77, to detect SPAM information in a particular location or locations, computer, 73, causes decoder, 77, to detect and transfer to computer, 73, said program unit and distance information. Receiving said information causes computer, 73, to cause recorder, 76, to stop playing; to analyze said distance information in a predetermined fashion; and to compute the precise time required to rewind to reach the start of the program unit or to move fast forward to reach the end. Then automatically, computer, 73, causes said recorder, 76, first, to start rewinding or moving fast forward then to stop after the precise time elapses.
said plurality of intermediate transmission stations retransmitting said at least one unit of programming independently and at different times in accordance with said programmed automatic control unit.	Page 342 line 26 through page 343 line 17.	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to

		each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.

2. Claim 4

The claim is directed to the operation of the satellite uplink of claim 3 (and its associate satellite), which receives and transmits the 26 spot commercials with their retransmission control signals (e.g., identifiers) as well as the schedules with their comparison signals (e.g., identifiers), with the cable head ends operating independently and retransmitting at least one commercial at different times.

Claim 4 finds support in the specification at pages 324-354 and especially at pages 340-344.

Claim Language	Spec. Reference	Specification Language
A method of communicating at least one unit of programming	Page 340 lines 12-23 and	AUTOMATING INTERMEDIATE TRANSMISSION STATIONS ... EXAMPLE #8 Using the capacity described above for identifying, selecting, and recording received programming; for organizing recorded programming to play according to schedule; for playing selected organized programming on schedule; ... a remote distribution station can transmit to a plurality of intermediate transmission stations programming that is scheduled for delayed transmission, cause each station of said plurality automatically to select and retransmit programming according to its

		own specific schedule, ...
	page 340 line 33 through page 341 lines 4;	Said programming might be, for example, so-called "television spot commercials." Providing means where by one station can transmit programming to a plurality of intermediate transmission stations and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule
	page 344 lines 23-30;	At 4 A.M. eastern standard time, on January 28, 1988 said remote distribution station commences transmitting programming by satellite up-link means, well known in the art. Said programming consists of a sequence of the program units of 26 spot commercials, each of thirty seconds duration. In succession, said station transmits units A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.
in a communications network,	for example, page 342 line 26 through page 343 line 4;	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network.
said communications network including at least one origination station and	page 340 lines 28-34;	One such remote distribution station might be, for example, a so-called "satellite uplink" that transmits programming, in a fashion well known in the art, to a plurality of receiver stations via a satellite transponder (said intermediate transmission stations being among said receiver stations). Said programming might be, for example, so-called "television spot commercials."
a plurality of	page 340 lines 18-20	a remote distribution station can transmit to

intermediate transmission stations,	and	a plurality of intermediate transmission stations
each said plurality of intermediate transmission stations	Page 341 lines 11-18.	...and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule....
	page 341 lines 26-29,	Among said intermediate stations are cable system head ends located in California and Florida, broadcast stations located in Texas and Washington, D.C., and the station of Fig. 6 which is, for example, in Vermont.
having a receiver,	for example, TV receiver 53 in figure 6A,	
	and,page 343 lines 21-32;	...instructions at each computer, 73, cause the computers, 73, at said intermediate transmission stations each, in a predetermined fashion, to commence preparing its particular station to receive and record information of the transmission of transponder 23 of the Galaxy 1 satellite. Automatically, at the station of Fig. 6, the computer, 73, instructs a selected earth station, 50, to move its antenna so as to receive transmissions from a satellite at the celestial coordinates of the Galaxy 1 satellite and instructs amplifier, 51, and receiver, 53, to amplify and tune as required to receive the transmission of the frequency of the transponder 23 of said satellite.
at least one selective transmission device operatively connected to said receiver for transferring programming to a transmitter,	for example, video recorder and player 76 in figure 6A,	
	page 347 lines 14-30,	Each computer, 73, of said intermediate stations is preprogrammed to account for and keep track of the quantity of time available for additional recording on the individual tapes loaded on the recorders (eg., 76 and 78) of its station, ...
an automatic control unit operatively connected to said selective transmission device,	for example, cable program controller and computer 73 in figure 6A,	
	page 326 lines 19-20,	Cable program controller and computer, 73,

		is the central automatic control unit for the transmission station.
	page 341 lines 30-34;	At each intermediate transmission station is a computer, 73, that is preprogrammed to receive, process, and record, in a predetermined fashion, program schedule information that is transmitted from said remote distribution station.
a detector operatively connected to said automatic control unit for detecting at least one signal,	for example, in signal processor 71 in figure 6A,	
	page 341 line 34 through page 342 line 2 with	And the signal processor system, 71, and the computer, 73, of each station are preprogrammed to process particular SPAM message instructions are transmitted from said remote distribution station.
	page 39 lines 1-11;	Fig. 2D shows one embodiment of a signal processing system. Said system contains signal processor, 26, and external decoders, 27, 28, and 29. Each said external decoder may be a TV signal decoder (Fig. 2A) or a radio signal decoder (Fig. 2B) or an other signal decoder (Fig. 2C) depending on the nature of the selected frequency inputted. As Fig. 2D shows, each decoder, 27, 28, and 29, receives one selected frequency and has capacity for transferring detected, corrected, converted, and possibly modified signals to signal processor, 26, at buffer/comparator, 8, and also to other station apparatus.
and said automatic control unit being programmed to perform in a station specific fashion, said method comprising the steps of:	Page 341 lines 30-34,	At each intermediate transmission station is a computer, 73, that is preprogrammed to receive, process, and record, in a predetermined fashion, program schedule information that is transmitted from said remote distribution station.
	and page 343 lines 5-7.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently.
(1) receiving said at least one unit of programming,	Page 340 line 28 through page 341 line 4,	One such remote distribution station might be, for example, a so-called "satellite uplink" that transmits programming, in a fashion well known in the art, to a plurality of receiver stations via a satellite transponder (said intermediate transmission stations being among said receiver stations). Said

		programming might be, for example, so-called "television spot commercials." Providing means where by one station can transmit programming to a plurality of intermediate transmission stations and cause each intermediate station to transmit its own specific selected units of said programming according to its own specific schedule
	page 344 lines 23-30;	At 4 A.M. eastern standard time, on January 28, 1988 said remote distribution station commences transmitting programming by satellite up-link means, well known in the art. Said programming consists of a sequence of the program units of 26 spot commercials, each of thirty seconds duration. In succession, said station transmits units A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.
said at least one unit of programming including a plurality of retransmission control signals;	page 344 lines 30-32.	Embedded in each of said program units are SPAM messages containing appropriate "program unit identification code" information and distance information.
(2) receiving a control signal which operates at said plurality of intermediate transmitter stations to communicate said at least one unit of programming to said transmitter; and	Page 342 lines 5-11.	...said remote distribution station commences contacting, individually and in turn in a fashion well known in the art, the computers, 73, of each of said intermediate station, via telephone or other data transfer network, 98 (which has capacity to communicate information individually between said remote station and each of said computers, 73). Said remote station inputs schedule information to each computer, 73.
(3) transmitting said at least one unit of programming,	Page 344 lines 28-30 and	In succession, said station transmits units A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.
wherein said at least one unit of programming is effective to cause said plurality of intermediate transmission stations to retransmit said at least one unit of programming independently and at different times in accordance with said programmed	page 344 lines 30-32,	Embedded in each of said program units are SPAM messages containing appropriate "program unit identification code" information and distance information.
	page 346 line 34 through page 347 line 5,	Subsequently, receiving the select-Q-message (#8) causes said computer, 73, to determine that the "program unit identification code" information of unit Q matches preprogrammed schedule information which causes said computer, 73, to cause recorder, 76, to commence recording, thereby causing said recorder, 76, to record the programming of program unit

automatic control unit.		Q which follows said select-Q-message (#8).
	page 349 line 35 through page 350 line 7,	Receiving said select-J-message (#8), the select-L-message (#8), and the select-Q-message (#8) cause said Florida computer, 73, to determine that "program unit identification code" information matches preprogrammed schedule information which causes said Florida computer, 73, to cause a selected recorder of said station to commence recording, thereby causing said recorder to record the programming of program units J, L, and Q.
	page 330 line 5 through page 331 line 16,	Computer, 73, has capacity for determining what programming is prerecorded on the magnetic tapes (or other recording media) loaded on the recorders, 76 and 78, and capacity for positioning the start points (or other selected points) of program units at the play heads of said recorders. Whenever programming is played on recorder, 76 or 78, decoder, 77 or 79 respectively, detects SPAM information embedded in the prerecorded programming played at the play heads of recorder, 76 or 78, and transmits said SPAM information to computer, 73. Said SPAM information can include not only "program unit identification code" information but also information regarding of the distance from the point on the tape at which a given SPAM message is embedded to the point on the tape where the program unit begins and ends (or to any other selected point). To position the start point (or another selected point) of a given program unit at the play heads of a given recorder, 76, computer, 73, instructs switch, 75, to configure its switches so as to transfer the transmission input from said recorder, 76, to no output. Then by instructing recorder, 76, to play and decoder, 77, to detect SPAM information in a particular location or locations, computer, 73, causes decoder, 77, to detect and transfer to computer, 73, said program unit and distance information. Receiving said information causes computer, 73, to cause recorder, 76, to stop playing; to analyze said distance information in a predetermined fashion; and to compute the precise time required to rewind to reach the start of the program unit or to move fast forward to

		reach the end. Then automatically, computer, 73, causes said recorder, 76, first, to start rewinding or moving fast forward then to stop after the precise time elapses. (Such distance information can be embedded as SPAM message information segment information anywhere in the programming that SPAM information can be embedded and need not repeat continuously--one embedded signal word is sufficient for this method to work. But a method wherein only one instance of distance information is embedded in any given program unit of programming has the disadvantage of causing too much apparatus at too many stations to spend too much time searching for said instance. In the preferred embodiment, distance information is embedded in the relevant normal transmission location of its programming and occurs periodically throughout a program unit with increasing frequency as the closeness of the start or end of the programming approaches and with one instance, in television programming, occurring on the first and fourth frames and the last two frames of the programming.)
	page 351 lines 31-32,	to commence transmitting the locally originated transmission of unit Q.
	page 353 lines 11-23,	(At the station of said Florida computer, 73, receiving said first-network-cue-to-transmit-network message (#8) causes said Florida computer, 73, to cause the apparatus of said station to cease transmitting the locally originated transmission of unit J; to recommence transmitting said Cable News Network transmission; and to prepare to play the locally originated transmission of unit Q or unit L.) Subsequently, other SPAM cueing messages cause the computer, 73, of the station of Fig. 6; said Florida computer, 73; and the computers, 73, of others of said intermediate transmission stations to locate, position to play, and transmit automatically other local origination program units.
	page 342 line 26 through page 343 line 17.	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D,

		Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.

3. Claim 5

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein each said plurality of intermediate transmission stations includes a plurality of selective transmission devices and	Page 324 line 35, page 341 lines 30-31, page 347 lines 14-18;	...recorder/players, 76 and 78 At each intermediate transmission station is a computer, 73 Each computer, 73, of said intermediate stations is preprogrammed to account for and keep track of the quantity of time available for additional recording on the individual tapes loaded on the recorders (eg., 76 and 78) of its station,
said automatic control unit is programmed with information	page 326 lines 19-24;	Cable program controller and computer, 73, is the central automatic control unit for the transmission station. Computer, 73, has an

including one of operating speeds of said plurality of selective transmission devices, connections of said plurality of selective transmission devices, and capacities of said plurality of selective transmission devices,		installed clock and is preprogrammed with information on the operating speeds and capacities of all station apparatus and the connections of said apparatus with matrix switch, 75.
said method further comprising the step of transmitting from said at least one origination station an instruct signal which is effective to cause at least one of said plurality of intermediate transmission stations to perform one of	page 342 lines 10-11, page 343 lines 5-7, page 348 line 30 through page 349 line 22;	Said remote station inputs schedule information to each computer, 73. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, causes apparatus of its station to cease receiving the transmission of said remote distribution station, alters its operating records to show that the receiver apparatus receiving said transmission is available for other use; and commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule. At the station of Fig. 6, receiving said select-Z- message (#8) causes computer, 73, to determine that program units Q, Y, W, and D have been received and that no further units will be received. Determining that no further units will be received causes computer, 73, to cause matrix switch, 75, to configure its switches so as to transfer transmissions inputted from receiver, 53, to no output; to alter its operating records to show that the receiver apparatus receiving the transmission of said remote distribution station is no longer in use and is available; and to organize the locations of the recorded program units, D, Q, W, and Y, to play according to the schedule inputted by said distribution station in the fashion described above (in the paragraph of the section, "AUTOMATING INTERMEDIATE

		TRANSMISSION STATIONS," that begins, "Computer, 73, has capacity for automatically organizing the locations of units of prerecorded programming ... to play according to a given schedule").
(1) storing different units of said at least one unit of programming at different selective transmission devices of said plurality of selective transmission devices and	page 334 lines 1-2;	computer, 73, causes units Y and W to be located on different recorders
(2) storing at least two units of said at least one unit of programming in a specific order.	page 334 lines 4-5.	and units Y then D to be located in sequence on the same recorder

4. Claim 6

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein each automatic control unit is programmed to control a storage device,	Page 341 lines 30-34 or,	At each intermediate transmission station is a computer, 73, that is preprogrammed to receive, process, and record, in a predetermined fashion, program schedule information that is transmitted from said remote distribution station.
	lines 32-33;	said computer, 73, (after causing recorder, 76, to cease recording)
said method further comprising the step of instructing different intermediate transmission stations of said plurality of intermediate transmission stations to store and retransmit different units of said at least one unit of programming.	page 343 lines 5-7 with page 342 line 26 through page 343 line 17.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern

		standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.
	Page 348 line 30 to page 349 line 6.	Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, causes apparatus of its station to cease receiving the transmission of said remote distribution station, alters its operating records to show that the receiver apparatus receiving said transmission is available for other use; and commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule. At the station of Fig. 6, receiving said select-Z- message (#8) causes computer, 73, to determine that program units Q, Y, W, and D have been received...

5. Claim 7

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein said	Page 326 lines 19-24,	Cable program controller and computer, 73, is the central automatic control unit for the

automatic control unit is programmed to control a switch,		transmission station. Computer, 73, has an installed clock and is preprogrammed with information on the operating speeds and capacities of all station apparatus and the connections of said apparatus with matrix switch, 75.
	page 328 lines 14-17,	Computer, 73, has means for communicating control information with matrix switch, 75, and video recorders, 76 and 78, and can cause selected programming to be transmitted to field distribution system, 93, or recorded.
	page 347 lines 14-21,	Each computer, 73, of said intermediate stations is preprogrammed to account for and keep track of the quantity of time available for additional recording on the individual tapes loaded on the recorders (eg., 76 and 78) of its station, and receiving any given message of said cue-to- select messages (#8) can cause any given computer, 73, to cause the apparatus of its station to switch from a primary to a secondary recorder of said station.
	page 347 lines 30-35;	At the station of Fig. 6, receiving said select-R-message (#8) causes said computer, 73, (after causing recorder, 76, to cease recording) to cause matrix switch, 75, to configure its switches to commence transferring the transmission from receiver, 53, to recorder, 78,
said method further comprising the step of instructing different intermediate transmission stations of said plurality of intermediate transmission stations to cause said switch to communicate a specific unit of said at least one unit of programming at one of different times and on different channels.	page 343 lines 5-7 with page 342 line 26 through page 343 line 17.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting

		the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.

6. Claim 8

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein each of said plurality of intermediate transmission stations retransmits programming on a plurality of channels,	Page 341 lines 26-29,	Among said intermediate stations are cable system head ends located in California and Florida, broadcast stations located in Texas and Washington, D.C., and the station of Fig. 6 which is, for example, in Vermont.
	page 324 lines 14-21,	may range in scale of operation from wireless broadcast stations that transmit a single programming transmission to cable systems that cablecast many channels simultaneously. Fig. 6 illustrates Signal Processing Apparatus and Methods at an intermediate transmission station that is a cable television system "head end" and that cablecasts several channels of television programming.
	page 342 line 24 through page 343 line 17;	cause the apparatus of said station to transmit each of said program units to the field distribution system, 93, of said station. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer,

		73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.
said method further comprising the step of instructing different intermediate transmission stations of said plurality of intermediate transmission stations to transmit a specific unit of said at least one unit of programming on different channels.	page 343 lines 5-7 with page 342 line 26 through page 343 line 17.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting

		the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.

7. Claim 9

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein said at least one signal for comparison identifies said at least one unit of programming,	Page 326 line 27-33;	Computer, 73, has means for receiving input information from local input, 74, and from remote stations via telephone or other data transfer network, 98. Such input information can include the complete programming schedule of the station of Fig. 6, with each discrete unit of programming identified by its own "program unit identification code" information.
said method further comprising the step of causing different intermediate transmission stations of said plurality of intermediate transmission stations to retransmit said identified at least one unit of programming at one	page 343 lines 5-7 with page 342 line 24 through page 343 line 17.	In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. cause the apparatus of said station to transmit each of said program units to the field distribution system, 93, of said station. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at

of different times and on different channels based on said at least one signal for comparison.		2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.

8. Claim 10

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein said at least one signal for comparison and said retransmission control signals comprise at least one schedule,	Page 342 lines 10-11, page 328 line 8-13, page 342 line 24	Said remote station inputs schedule information to each computer, 73. By comparing selected meter-monitor information of said message information with information of the programming schedule received earlier from input, 74, and/or network, 98, computer, 73, can determine, in a predetermined fashion, when and on what channel or channels the station of Fig. 6 should transmit the programming of each received program unit. cause the apparatus of said station to

	through page 343 line 17;	transmit each of said program units to the field distribution system, 93, of said station. For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.
said method further comprising the step of programming at least one of said plurality of intermediate transmission stations to select said at least one unit of programming in accordance with said at least one schedule.	page 342 lines 26-29. Page 343 lines 18 to 26.	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W.... Subsequently, at a particular time--more precisely, at 3:50 A.M. eastern standard time, on January 28, 1988--said schedule information and particular preprogrammed receive- scheduled-programming instructions at each computer, 73, cause the computers, 73, at said intermediate transmission stations each, in a

		predetermined fashion, to commence preparing its particular station to receive and record information of the transmission of transponder 23 of the Galaxy 1 satellite.

9. Claim 11

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein a portion of said plurality of retransmission control signals instruct said plurality of intermediate transmission stations to retransmit programming immediately,	Page 326 lines 30-31.	Such input information can include the complete programming schedule of the station of Fig. 6,
	Page 328 lines 8-22,	By comparing selected meter-monitor information of said message information with information of the programming schedule received earlier from input, 74, and/or network, 98, computer, 73, can determine, in a predetermined fashion, when and on what channel or channels the station of Fig. 6 should transmit the programming of each received program unit. Computer, 73, has means for communicating control information with matrix switch, 75, and video recorders, 76 and 78, and can cause selected programming to be transmitted to field distribution system, 93, or recorded. Determining that particular incoming programming is scheduled for immediate retransmission can cause computer, 73, to cause matrix switch, 75, to configure its switches so as to transfer said incoming programming to a scheduled output channel.
	Page 353 lines 4-16.	Receiving said first-network-cue-to -transmit-network message (#8) causes the computer, 73, of the station of Fig. 6, to cause the apparatus of said station, as described above, to cease transmitting to field distribution system, 93, the locally originated transmission of unit Q; to recommence transmitting said Cable News Network transmission; and to prepare to play the locally originated transmission of unit Y. (At the station of said Florida computer, 73, receiving said first-network-cue-to-transmit-network message (#8) causes said Florida computer,

		73, to cause the apparatus of said station to cease transmitting the locally originated transmission of unit J; to recommence transmitting said Cable News Network transmission;
said method further comprising the step of selecting said at least one unit of programming to store and retransmit based on said at least one signal for comparison.	page 346 line 34 through page 347 line5.	Subsequently, receiving the select-Q-message (#8) causes said computer, 73, to determine that the "program unit identification code" information of unit Q matches preprogrammed schedule information which causes said computer, 73, to cause recorder, 76, to commence recording, thereby causing said recorder, 76, to record the programming of program unit Q which follows said select-Q-message (#8).

10. Claim 12

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein said automatic control unit is programmed to organize a portion of said at least one unit of programming in a specific order,	Page 348 line 30 through page 349 line 22, and	Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, ... commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule. ...in the fashion described above (in the paragraph of the section, "AUTOMATING INTERMEDIATE TRANSMISSION STATIONS," that begins, "Computer, 73, has capacity for automatically organizing the locations of units of prerecorded programming ... to play according to a given schedule").
said method further comprising the step of causing different intermediate transmission stations of said plurality of intermediate transmission stations to organize said portion of said at least one unit of programming in different orders.	Page 342 line 24 to page 343 line 17.	For example, in the case of the computer, 73, of the station of Fig. 6, said remote distribution station informs said computer, 73, to select and record program units Q, D, Y, and W; to transmit program unit Q at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit Y at 2:45:00 PM eastern standard time, on January 29, 1988 on the cable channel transmitting the Cable News Network; to transmit program unit W at 2:45:00 PM eastern standard time, on January

		29, 1988 on the cable channel transmitting the USA Cable Network; to transmit program unit D at 9:15:30 PM eastern standard time, on January 30, 1988 on the cable channel transmitting the Cable News Network. In inputting schedule information to each computer, 73, said remote distribution station instructs different computers, 73, to operate differently. For example, said remote station instructs a particular Florida computer, 73, at a cable system head end station in Florida (which computer, 73, is not the computer, 73, of the station of Fig. 6) to select and record program units Q, J, and L; to transmit program unit J at 2:30:30 PM eastern standard time, on January 29, 1988 on the cable channel of said station in Florida that transmits the Cable News Network; and to transmit units Q and L subsequently at particular times on the cable channel of said station that transmits the Spanish International Network.
	page 348 line 30 through page 349 line 4.	Whenever any given computer, 73, of said stations determines that no further units will be received, said computer, 73, causes apparatus of its station to cease receiving the transmission of said remote distribution station, alters its operating records to show that the receiver apparatus receiving said transmission is available for other use; and commences automatically organizing, in the fashions described above, the order of the program units so selected and recorded and playing said units according to its contained schedule.

11. Claim 13

Claim Language	Spec. Reference	Specification Language
The method of claim 3, wherein said automatic control unit is programmed to insert at least one of a data and control instruction	Page 375 lines 7-12,	The program unit Q of example #10 is identical to the program unit Q of example #9, and each intermediate transmission station must generate transmit its own, station specific program instruction set and data module set information that contains its own, station specific formula- and-item-of-this-transmission information.

in said at least one unit of programming.	page 355 lines 18-26,	Computer, 73, is preprogrammed to process combined medium programming. When the aforementioned remote distribution station inputs information to computer, 73, via network, 98, regarding unit Q, said distribution station inputs information that Q is particular combined medium programming and instructs computer, 73, to commence particular program instruction set generation in a particular fashion at a particular time interval prior to the scheduled playing of Q.
	Page 381 lines 3-10,	One difference between example #9 and example #10, which is based on the preprogrammed schedule information of each intermediate transmission station, is that executing the information of the generate-set-information message (#10) causes the generated program instruction set and data module set information to be recorded at non-volatile, disk memory whereas in example #10 the generated information may be recorded merely at RAM.
	page 384 lines 30-34,	Receiving the information of the particular **data- module-set message** (#10) of the computer, 73, of its station causes each generator, 82, to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82,....
	page 386 lines 7-11,	Receiving the information of the particular **program- instruction-set message** (#10) of the computer, 73, of its station causes a generator, 82, to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82,....
	Page 59 lines 29-31.	THE ORGANIZATION OF MESSAGE STREAMS - MESSAGES, CADENCE INFORMATION, AND END OF FILE SIGNALS All of the information transmitted with a given header is called a "message." Each header begins a message, and each message begins with a header. More specifically, a message consists of all the SPAM information, transmitted in a given

		transmission, from the first bit of one header to the last bit transmitted before the first bit of the next header. A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations.
said method further comprising the step of causing different intermediate transmission stations of said plurality of intermediate transmission stations to insert one of	page 24 lines 14-16;	a set of instructions that is loaded and run is called a "program instruction set."
	page 383 lines 21-31,	Then said studio embeds in said transmission and transmits a SPAM message is addressed to ITS computers, 73, and that contains execution and meter-monitor segments. (Said message is called, hereinafter, the "transmit-data- module-set message (#10)".) Receiving said transmit-data- module-set message (#10) causes each of said computers, 73, to cause stripping and embedding to commence; to generate a particular first outbound SPAM message that includes information of the data file, DATA_OF.ITS, at its data-set- to-transmit RAM memory; and to cause said message to be transmitted to its field distribution system, 93.
	page 384 line 30 through page 385 line 12;	Receiving the information of the particular data- module-set message (#10) of the computer, 73, of its station causes each generator, 82, to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular data-module-set message (#10) of said station to said system, 93. Then said program originating studio embeds in the normal transmission location of said transmission and transmits a SPAM message that is addressed to ITS computers, 73, and that contains execution and meter-monitor segments. (Said message is called, hereinafter, the "transmit-and-execute-program-instruction-set message (#10)".) Receiving said message causes each of said computers, 73, to generate a second outbound SPAM message that includes information of the program instruction set at its program- set-to-transmit RAM memory

(i) different data of said at least one of a data and control instruction and	page 379 line 31 through page 380 line 6 and	In precisely the fashion that applied in example #9, executing the information of said intermediate generation set causes said computer, 73, to select data, from among the local-formula-and-item information of said station, including the aforementioned "Nabisco Zweiback Teething Toast" and the street address of every one of said supermarket chain's markets in the local vicinity of the station of Fig. 6, and to record said selected data on said memory disk in a data file named DATA_OF.ITS. In so doing, said computer, 73, generates said data module set of Q.1.
	page 380 lines 24-34;	Executing the information of said intermediate generation set causes said computer, 73, also to select particular data, including said "Cheerios Toasted Oat Cereal" and the street address of every one of said supermarket chain's markets in the locality of said second intermediate station and to record said selected data at said memory unit in a data file named DATA_OF.ITS that corresponds in content to the file of the same name generated a the intermediate station of Fig. 6. [Hereinafter, the data module set generated at said second station is called the "data module set of Q.2"
(ii) a different control instruction of said at least one of a data and control instruction in said at least one unit of programming.	page 379 lines 5-31 versus	At the station of Fig. 6, for example, executing the information of said intermediate generation set causes the computer, 73, in precisely the fashion that applied in example #9, to compute the value of a particular variable b to be 62.21875; to computes the value of a particular variable c to be 2.117; and to replaces particular variable values, a, b, and c, in a particular so-called "higher language line of program code" to become formula-and-item-of- this-transmission information of: $Y = 1000.00 + 62.21875 + (2.117 * X)$ to select, compute, and replace other variable information until complete program instruction set information exists in higher language code at particular memory; to compile said higher language information; to link the information so complied with other compiled information; and to record the

		information so computed, compiled, and linked (which is complete information the program instruction set of Q of the station of Fig. 6) in a file named "PROGRAM.EXE", in a fashion well known in the art, on a computer memory disk of computer, 73. In so doing, said computer, 73, generates the specific program instruction set version--that is, the program instruction set of Q.1--that applies to the particular discounts and specials in effect at the particular markets in the vicinity of said station and at the particular time of the network transmission of Q.
	page 380 lines 7-24,	At said second intermediate transmission station, executing the information of said intermediate generation set causes the computer, 73, of said station to compute the values of variables b and c as 132.2362 and 2.0882 respectively; to replace variable values, a, b, and c, with formula-and-item-of-this-transmission information of: $Y = 1000.00 + 132.2362 + (2.0882 * X)$ to process other variable information; and to compile, link, and record information at a particular peripheral memory unit of said computer, 73, in a file named "PROGRAM.EXE" that is the specific program instruction set of said second intermediate station. [Hereinafter, the program instruction set generated at said second station is called the "program instruction set of Q.2", signifying that said set is a second version of complete program instruction set information of said instance of the network transmission of Q.]
	note particularly, page 379 line 15 versus page 380 line 14.	$Y = 1000.00 + 62.21875 + (2.117 * X)$ $Y = 1000.00 + 132.2362 + (2.0882 * X)$

12. Claim 14

Claim Language	Spec. Reference	Specification Language
The method of claim 3, further comprising the step of	Page 352 lines 18-30,	Causing the apparatus of the station of Fig. 6 to commence transmitting the locally originated transmission of unit Q to field

documenting the transmission of a specific unit of said at least one unit of programming at specific intermediate transmission stations of said plurality of intermediate transmission stations.	page 353 line 29 through page 354 line 3.	distribution system, 93, causes the signal processor of the signal processor system, 71, and the signal processor, 96, of station of Fig. 6 to retain signal record information of the meter-monitor information of SPAM messages embedded in the prerecorded programming of said unit Q, as described above; causes said processors (in the fashion described in example #3 above) each to record previously retained signal record information of the prior programming-- i.e., programming of said Cable News Network-- and may cause one or both of said processors to transmit signal record information or one or more remote auditing stations. In this fashion, a remote distribution station can deliver prerecorded programming to a plurality of intermediate transmission stations, control the automatic time-delayed insertion of specific program units of programming into other programming transmissions at specific intermediate transmission stations according to the specific schedule of each station, and cause records to be recorded and transmitted to a remote auditing station or stations that document which specific program units were transmitted at which specific station at what specific times.

13. Claim 15

Claim Language	Spec. Reference	Specification Language
The method of claim 3, further comprising the step of transmitting at least one data from said plurality of intermediate transmission stations to a remote data collection station.	Page 340 lines 23-27.	...cause signal processing apparatus automatically to transmit to a remote auditing station or stations signal records that document the transmission of specific program units at the specific stations of said plurality....

14. Claim 16

Claim Language	Spec. Reference	Specification Language
The method of claim 3, further comprising the step of transmitting said at least one signal for comparison and	Page 430 lines 15-19.	The cable program controller & computer, 73, of each intermediate station is preprogrammed with schedule information that reflects the particular time at which and the channel on which said station will retransmit said "Wall Street Week" program.
	Page 431 line 26 to page 431 line 18.	Executing said incorporate-and-retain-Select-WSW-Program-Unit-SPAM-message instructions causes said computer, 73, to generate particular please-fully-enable-WSW-on-CC13-at-particular-8:30 information and a particular Select-WSW- Program-Unit SPAM message and to retain said message at particular Select-Program-Unit-Message-to-Transmit memory. Automatically, said computer, 73, generates said please-fully-enable-WSW-on-CC13-at-particular-8:30 information by replacing the information of particular variables, XXXX and YYYYYYYYYYYYYY, in said generally applicable please-fully-enable-WSW-on-XXXX-at-YYYYYYYYYYYYYY information with said CC13 and said particular-8:30 information that are preprogrammed at said computer, 73, and that reflect that the schedule of the intermediate station of said computer, 73. Said Select-WSW-Program-Unit message consists of an "01" header; an execution segment of information that is identical to the aforementioned available-television-program information; a meter-monitor segment that consists of the meter-monitor information of said Prepare-To-Retransmit-WSW message plus information that identifies said intermediate station (the format information of said meter-monitor information being modified to reflect the addition of said information that identifies said station); appropriate padding bits; an information segment of generally applicable determine-whether-to-select instructions of said Transmit- Select-WSW message that contain said particular specific-WSW information and said please-fully-enable-WSW-on-CC13-at-particular-8:30 information; and an end of

		file signal.
	Page 434 lines 27-33.	In due course, executing said timing instructions causes the computer, 73, of the station of Fig. 6 to commence transmitting the SPAM message at its particular Select-Program-Unit-Message-to-Transmit memory, which is its station specific Select-WSW-Program-Unit SPAM message, embedded in the normal transmission location of cable channel 13.
said plurality of retransmission control signals from a first of said plurality of intermediate transmission stations.	Page 351 lines 31-32 with	...commence transmitting the locally originated transmission of unit Q
	page 344 lines 30-32 and	Embedded in each of said program units are SPAM messages containing appropriate "program unit identification code" information and distance information.
	page 13 lines 26-28.	Embedded signals provide several advantages. They cannot become separated inadvertently from the programming and, thereby, inhibit automatic processing.

15. Conclusion

Applicants respectfully submit that the pending claims of the subject application particularly point out and claim the subject matter sufficiently for one of ordinary skill in the art to comprehend the bounds of the claimed invention. The test for definiteness of a claim is whether one skilled in the art would understand the bounds of the patent claim when read in light of the specification, and if the claims so read reasonably apprise those skilled in the art of the scope of the invention, no more is required. *Credle v. Bond*, 25 F.3d 1556, 30 USPQ2d 1911 (Fed. Cir. 1994). The legal standard for definiteness is whether a claim reasonably apprises those of skill in the art of its scope. *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994). Applicants have amended the claims to enhance clarity and respectfully submit that all pending claims are fully enabled by the specification and distinctly indicate the metes and bounds of the claimed subject matter.

D. Support for Previous Amendment of "signal words" to "signal units"

During the interview of July 15th, 1999, the Examiners requested Applicants to demonstrate that no new matter was introduced into the specification in the amendment entered on October 21, 1998 which changed the following language in the specification on page 37 lines 22-25:

> "Controller, 39, 44, or 47, is preprogrammed to receive [units] words of signal information, to assemble said [units] words into signal [words] units that subscriber station apparatus can receive and process, and to transfer said [words] units to said apparatus."

Applicants submit that this amendment was merely made to correct a typographical mistake on their part. Additionally, specification support to verify the necessity of the amendment is found in the following language from page 14 lines 22-35.

> In all cases, signals may convey information in discrete words, transmitted at separate times or in separate locations, that receiver apparatus must assemble in order to receive one complete instruction.
>
> (The term "**signal unit** " hereinafter means one complete signal instruction or information message unit.... The term "**signal word**" hereinafter means one full discrete appearance of a signal as embedded at one time in one location on a transmission....) *Emphasis added.*

From the above language, a "**signal unit**" is "one complete signal instruction or information message unit." *Words* of signal information are received and assembled into *signal units*, or completed instructions, for the subscriber station apparatus to receive, process and transfer. Thus, it should be clear from this passage that no new matter was introduced with the amendment and Applicants urge the PTO to maintain and/or enter the previous amendment as appropriate under 37 C.F.R. § 1.118 (a).

III. CONCLUSION

In accordance with the foregoing it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. Further, all pending claims are patentably distinguishable over the prior art of record, taken in any proper combination. Thus, there being no further outstanding objections or rejections, the application is submitted as being in a condition for issuance, which action is earnestly solicited.

If the Examiner has any remaining informalities to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such informalities.

Respectfully submitted,

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